

A CHECKLIST AND BIBLIOGRAPHY OF PARASITES
OF NEW ZEALAND FRESHWATER FISH.

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ABSTRACT

A checklist and bibliography of parasites of New Zealand freshwater fish is presented.

KEYWORDS: New Zealand, freshwater, fish, parasites, checklist.

INTRODUCTION

Since the publication of a checklist of New Zealand fish parasites by Hewitt and Hine (1972) [33], a considerable body of information on parasites of freshwater fish has appeared. Of the 98 references in the present checklist, only 27 appeared in that by Hewitt and Hine.

Use of this checklist should be self-evident, but a few points should be made. The checklist is arranged first alphabetically by host, with parasites of each listed alphabetically within major taxonomic groups. This is followed by a parasite list with host species given for each parasite. References in each case are indicated by numbers within square brackets []. Where available, the site of parasitism within a host is given. When literature sources are vague, or do not state parasite sites, the probable site is indicated, preceded by a question mark.

When parasites are mentioned in popular articles and in government publications, it is often impossible to be certain whether these are original observations or are derived from earlier literature. For the sake of completeness, all such records are

included.

Although many fish found in New Zealand inland waters are clearly inhabitants of freshwater only, a number of marine and estuarine species may also occur. In compiling this checklist, it was considered appropriate to include all fish species covered by McDowall (1978) [72] in his book on New Zealand freshwater fish. Names of host species follow McDowall (1978).

Introduced fish, notably the salmonids, often have a substantial recorded parasite fauna in their home waters. However, only parasites reported in New Zealand for introduced species are included in the checklist. Some parasites recorded in New Zealand from introduced fish, notably the grass carp, are thought to have been eradicated by vigorous control measures [23].

A number of fish species, both native and introduced, also occur in Australia. On zoogeographical grounds, it is possible that parasites known from fish species in Australia may also be found in the same species in New Zealand. For this reason, the reader is referred, where appropriate, to relevant Australian literature sources [10,22] to obtain parasite records for that country.

Parasite names given in the checklist are generally the original names given in the New Zealand literature. Synonyms are indicated where appropriate.

With the exception of those given in Hewitt and Hine (1972) [33], which has served as a model and basis for this checklist, theses and other unpublished materials have been omitted.

Hewitt and Hine (1972) have been followed in omitting such dubious "parasites" as members of the isopod genus Cirolana.

ADDENDA

BLAIR, D. 1983. Larval horsehair worms (Nematomorpha) from the tissues of native freshwater fish in New Zealand. New Zealand Journal of Zoology, 10: 341-344. Encysted larval horsehair worms in tissues of Gobiomorphus breviceps and Galaxias vulgaris: Coitocaecum sp. in gut of Gobiomorphus breviceps.

HOBBS, D.F. 1948. Trout fisheries in New Zealand. Their development and management. New Zealand Marine Department. Fisheries Bulletin No. 9. 175 pp. Eustrongylides sp. in trout.

HOLTON, A.L. 1983. Observations on the life-history of Deretrema minutum Manter, 1954 (Digenea: Zoogonidae) in freshwater crustacean and fish hosts from Canterbury, New Zealand. New Zealand Journal of Marine and Freshwater Research, 17: 373-376. Deretrema minutum in intestines of Retropinna retropinna and Galaxias maculatus.

HOLTON, A.L. 1984. A redescription of Coitocaecum parvum Crowcroft, 1945 (Trematoda: Digenea) from crustacean and fish hosts in Canterbury, previously misidentified as Coitocaecum anaspidis Hickman, 1934. New Zealand Journal of Zoology: (in press). Coitocaecum parvum in intestines of Gobiomorphus cotidianus, G. breviceps, Galaxias maculatus, Retropinna retropinna, Anguilla australis: Coitocaecum zealandicum in intestine of Cheimarrichthys fosteri.

HOLTON, A.L. 1984. Progenesis as a means of abbreviating life histories in two New Zealand trematodes, Coitocaecum parvum Crowcroft, 1945 and Stegodexamene anguillae Macfarlane, 1951. Mauri Ora, 11: (in press). Progenetic metacercariae of Stegodexamene anguillae in Gobiomorphus cotidianus.

PERCIVAL, E. and BURNET, A.M.R. 1963. A study of the Lake Lyndon rainbow trout (Salmo gairdnerii). New Zealand Journal of Science, 6: 273-303. Eustrongylides sp. in rainbow trout.

WEEKES, P.J. 1983. Occasional notes on parasites in New Zealand fauna 1. A new host for Deretrema philippae Hine, 1977. Tuatara, 26: 60-61. Deretrema philippae in gall bladder of Gobiomorphus cotidianus.

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HOSTS

Aldrichetta forsteri (Cuvier and Valenciennes, 1836). Yellow-eyed mullet.

See also [10] for Australian records.

Platyhelminthes - Monogenea

Diplasiocotyle johnstoni Sandars, 1944: gills [26, 89, 90].

Microcotylidae unspecified: gills [89].

Platyhelminthes - Digenea

Tergestia agnostomi Manter, 1954: intestine [62, 80].

Unidentified adults and metacercariae [97].

Platyhelminthes - Cestoda

Lacistorhynchus tenuis (van Beneden, 1858): plerocercoid in body cavity [88].

Nematoda

Anisakis sp.: larva encapsulated on viscera [18].

Contracaecum sp.: larva in body cavity and gut [18].

Hedruris spinigera Baylis, 1931: stomach [8, 9, 18, 62, 92, 95, 97].

Acanthocephala

Neoechinorhynchus aldrichettae Edmonds, 1971: posterior gut [16].

Neoechinorhynchus chilkaense Podder, 1937: rectum [97].

Crustacea - Copepoda

Lernaea sp.: body surface [16].

Crustacea - Isopoda

Unspecified: gills [89].

Anguilla australis Richardson, 1848. Short-finned eel. See also [10]
for Australian records.

Protozoa - Apicomplexa

Eimeria anguillae Léger and Hollande, 1922: oocysts in blisters in gut wall [16, 39].

Protozoa - Myxozoa

Chloromyxum sp.: urinary bladder [45].

Henneguya sp.: intestine [45].

Myxidium acinum Hine, 1975: spores in cysts on gills [38, 45, 54].

Myxidium zealandicum Hine, 1975 (= M. giardi Cépède, 1905 according to [54]): spores in cysts in gill filaments, on gill arch, in skin, walls of swim and urinary bladders, and on serosal surface of stomach. Free spores in liver, gall and urinary bladders [38, 45, 46, 47, 54].

Myxidium sp.: spores in cysts on gills and in reticulo-histiocytic cells [16, 39, 55, 67, 72].

Myxobolus sp.: cysts in skin, free spores in liver, urinary bladder and reticulo-histiocytic cells [16, 45, 67, 70].

Thelohanelius sp.: ? cysts in skin [45].

Protozoa - Ciliophora

Scyphidia sp.: gills [16].

Trichodina sp.: in smears of body mucus, blood films and liver and splenic imprints [45, 66].

Platyhelminthes - Digenea

Coitocaecum anaspidis Hickman, 1934: intestine [45, 51, 56, 81].

Coitocaecum zealandicum Hine, 1977: ? intestine [45].

Deretrema minutum Manter, 1954: ? intestine [45].

Grassitrema prudhoei Yeh, 1955 (= Tricotyledonia genypteri Fyfe, 1954 according to [82]): stomach [98].

Lecithochirium sp.: ? intestine [87].

Paracardicoloides yamagutii Martin, 1974: circulatory system, especially in gills [45, 51].

Phyllodistomum anguillae Macfarlane, 1936: urinary bladder [75].

Phyllodistomum sp.: urinary bladder [16, 45, 51].

Stegodexamene anguillae Macfarlane, 1951: anterior intestine [45, 49, 51, 56, 78, 79, 81, 87].

Telogaster opisthorchis Macfarlane, 1945: posterior intestine, rectum [45, 49, 51, 56, 68, 69, 77, 78, 79, 81, 87].

Tubulovesicula angusticauda (Nicol, 1915): stomach [98].

Unidentified bivesiculid: gut [87].

Unidentified hemiurid: ? intestine [45].

Platyhelminthes - Cestoda

Proteocephalid plerocercoid: ? intestine or body cavity [45].

Nematoda

Anguillicola australiensis Johnston and Mawson, 1940: swim bladder [16, 45, 87].

Ascarophis sp.: ? intestine [45].

Cucullanus sp. b: intestine [18].

Cucullanus sp.: intestine [45, 49, 51, 52, 56, 87].

Eustrongylides sp.: larva, in intestine or encapsulated on organs [18, 45, 51].

Hedruris spinigera Baylis, 1931: stomach and anterior intestine [18, 19, 45, 51, 59].

Paraquimperia sp.: intestine [18, 45, 49, 51, 52, 56].

Procamallanus sp.: ? intestine [45]. (= Spirocamallanus sp. according to [52])

Spirocamallanus sp.: intestine [49, 51, 52, 56, 87].

Acanthocephala

Acanthocephalus galaxii Hine, 1977: intestine [40, 45, 51].

Neoechinorhynchus aldrichettae Edmonds, 1971: ? intestine [45].

Crustacea - Copepoda

Abergasilus amplexus Hewitt, 1978: gills [30, 45, 63].

Mollusca

Glochidia of freshwater bivalves (Hyridella sp.): gills [45].

Anguilla dieffenbachii Gray, 1842. Long-finned eel.

Protozoa - Apicomplexa

Eimeria anguillae Léger and Hollande, 1922: oocysts in blisters in wall of intestine [16, 39].

Protozoa - Myxozoa

Chloromyxum sp.: urinary bladder [45].

Henneguya sp.: intestine [45].

Myxidium acinum Hine, 1975: spores in cysts on gills [38, 45, 47, 54].

Myxidium serum Hine, 1975 (= M. giardi Cépède, 1905 according to [54]): mature spores in cysts in the alimentary musculature and occasionally the submucosa, immature spores in cysts in mesenteric connective tissue [38, 45, 54].

Myxidium zealandicum Hine, 1975 (= M. giardi Cépède, 1905 according to [54]): spores in cysts in gill filaments, on gill arch, in skin, walls of swim and urinary bladders, and on serosal surface of stomach. Free spores in liver, gall and urinary bladders [38, 45, 46, 47, 54, 70].

Myxidium sp.: spores in cysts on gills and in reticulo-histiocytic cells [16, 39, 55, 67].

Myxobolus sp.: cysts in skin, free spores in liver, urinary bladder and reticulo-histiocytic cells [16, 45, 67, 70].

Thelohanellus sp.: ? cysts in skin [45].

Protozoa - Ciliophora

Trichodina sp.: in smears of body mucus, blood films and liver and splenic imprints [16, 45, 66].

Platyhelminthes - Digenea

Coitocaecum anaspidis Hickman, 1934: intestine [45, 51, 80, 81].

Coitocaecum zealandicum Hine, 1977: ? intestine [45].

Deretrema minutum Manter, 1954: ? intestine [45].

Grassitrema prudhoei Yeh, 1955 (= Tricotyledonia genypteri Fyfe, 1954 according to [82]): stomach [98].

Paracardicoloides yamagutii Martin, 1974: circulatory system, especially in gills [45, 51].

Phyllodistomum anguillae Macfarlane, 1936: urinary bladder [75].

Phyllodistomum sp.: urinary bladder [16, 45, 51].

Stegodexamene anguillae Macfarlane, 1951: anterior intestine [45, 49, 51, 56, 78, 79, 80, 81, 87].

Telogaster opisthorchis Macfarlane, 1945: posterior intestine, rectum [45, 49, 51, 56, 68, 69, 77, 78, 79, 81, 87].

Tubulovesicula angusticauda (Nicol, 1915): stomach [98].

Unidentified bivesiculid: intestine [87].

Unidentified hemiurid: intestine [45].

Platyhelminthes - Cestoda

Proteocephalid plerocercoid: ? intestine or body cavity [45].

Nematoda

Anguillicola australiensis Johnston and Mawson, 1940: swim bladder [16, 18, 45, 87].

Ascarophis sp. d.: stomach [18].

Contracaecum (Thynnascaris) sp.: larva in body cavity and gut [18].

Cucullanus sp. a.: intestine [18].

Cucullanus sp. b.: intestine [18].

Cucullanus sp.: intestine [45, 49, 51, 52, 56, 87].

Eustrongylides sp.: larva, in intestine or encapsulated on organs [18, 45, 51].

Hedruris spinigera Baylis, 1931: stomach [18, 45, 51, 59, 92].

Paranisakis sp.: larva encysted in stomach wall [18, 45].

Paraquimperia sp.: intestine [18, 45, 49, 51, 52, 56, 87].

Philometra sp.: body cavity [18, 45].

Procamallanus sp.: ? intestine [45]. (= Spirocamallanus sp. according to [52].)

Spirocamallanus sp.: intestine [16, 18, 44, 49, 51, 52, 56, 87].

Acanthocephala

Acanthocephalus galaxii Hine, 1977: intestine [40, 45, 51].

Crustacea - Copepoda

Abergasilus amplexus Hewitt, 1978: gills [30, 45].

Mollusca

Glochidia of freshwater bivalves (Hyridella sp.): gills [45].

Anguilla sp. Unspecified freshwater eel.

Protozoa - Apicomplexa

Eimeria sp.: blister-like cysts in intestine [37, 44, 55].

Protozoa - Myxozoa

Myxidium sp.: cysts on gills, trophozoite in gall bladder [32, 37, 72].

Myxobolus sp.: cysts on body surface [32, 37, 55].

Thelohanelius sp.: cysts in skin [16, 72].

Protozoa - Ciliophora

Chilodonella sp.: gills [16].

Ichthyophthirius multifiliis Fouquet, 1876: body surface and gills [13, 16, 32, 44, 45, 55, 59, 60].

Trichodina anguillae Wu, 1961: ectoparasitic [66].

Trichodinid ectoparasitic [16].

Platyhelminthes - Digenea

Coitocaecum anaspidis Hickman, 1934: intestine [76, 79].

Nematoda

Ascarophis sp.: ? intestine [16].

Eustrongylides sp.: ? larva in intestine or encapsulated on organs
[16, 94].

Acanthocephala

Acanthocephalus sp.: intestine [76].

Crustacea - Copepoda

Abergasilus amplexus Hewitt, 1978: ? gills [32].

Arripis trutta (Forster, in Bloch and Schneider, 1801). Kahawai.

See also [10] for Australian records.

Protozoa - Myxozoa

Leptotheca annulata Meqlitsch, 1960: gall bladder [83].

Leptotheca minima Meglitsch, 1960: gall bladder [83].

Platyhelminthes - Monogenea

Gonoplasius truttae Dillon and Hargis, 1965 (= Kahawaia truttae (Dillon and Hargis, 1965) Lebedev, 1969 according to [90]): gills [20, 89, 90].

Platyhelminthes - Digenea

Anahemiurus sp.: ? intestine [7].

Parahemiurus arripidis Lebedev, 1971: stomach [65].

Prosorhynchus sp. (immature): ? intestine [80].

Syncoelium filiferum (Sars, 1885): gills [89,90].

Telorhynchus arripidis Crowcroft, 1947: intestine [80].

Unidentified adult digeneans: intestine [97].

Platyhelminthes - Cestoda

Nybelinia sp.: larva in stomach [7].

Nematoda

Anisakis sp.: larva encapsulated on viscera, mesenteries and under peritoneum [18].

Contracaecum (Thynnascaris) aduncum (Rudolphi, 1802): intestine [7, 18, 97].

Contracaecum (Thynnascaris) sp.: two types, stomach, intestine and body cavity [18].

Acanthocephala

Neoechinorhynchus chilkaensis Podder, 1937: posterior intestine [97].

Crustacea - Copepoda

Abergasilus amplexus Hewitt, 1978: gills [30].

Crustacea - Isopoda

Codonophilus imbricatus (Fabricius, 1787): mouth and throat [7].

Nerocila macleayii Leach : ?body surface [93].

Carassius auratus Linnaeus, 1758. Goldfish. See also [10] for Australian records.

Crustacea - Copepoda

Abergasilus amplexus Hewitt, 1978: gills [30].

Lernaea cyprinacea Linnaeus, 1761: body surface [16].

Crustacea - Branchiura

Argulus japonicus Thiele, 1900: body surface [16, 72, 85, 96].

Cheimarrichthys forsteri Haast, 1874. Torrentfish.

Protozoa - Myxozoa

Myxobolus sp.: cysts on skin [55].

Platyhelminthes - Digenea

Coitocaecum zealandicum Hine, 1977: intestine and rectum [43].

Ctenopharyngodon idella (Valenciennes). Grass carp.

Protozoa - Ciliophora

Ichthyophthirius multifiliis Fouquet, 1876: body surface, gills and pharynx [16, 23, 37].

Tripartiella sp.: scales and fins [16, 23, 37].

Platyhelminthes - Monogenea

Dactylogyrus ctenopharyngodonis Achmerow, 1952: gills [23].

Dactylogyrus sp.: ? gills [16, 37].

Gyrodactylus ctenopharyngodontis Lin Mo-en, 1962: scales and fins [23].

Gyrodactylus sp.: gills [16, 37].

Platyhelminthes - Cestoda

Bothriocephalus gowkongensis Yeh, 1955: intestine [16, 23].

Crustacea - Copepoda

Lernaea cyprinacaea Linnaeus, 1761: body surface, musculature and gills [23].

Galaxias argenteus (Gmelin, 1789). Giant Kokopu.

Acanthocephala

Acanthocephalus galaxii Hine, 1977: intestine [40].

Galaxias brevipinnis Günther, 1866. Koaro. See also [10] for Australian records.

Protozoa - Myxozoa

Myxobolus sp.: cysts in muscle [16].

Protozoa - Ciliophora

Ichthyophthirius multifiliis Fouquet, 1876: body surface and gills [16].

Platyhelminthes - Monogenea

Gyrodactylus sp.: gills [16].

Gyrodactylid: on fins [72].

Platyhelminthes - Digenea

Coitocaecum anaspidis Hickman, 1934: intestine [76].

Deretrema sp.: gall bladder [72].

Phyllodistomum anguillae Macfarlane, 1936: urinary bladder [75].

Stegodexamene anguillae Macfarlane, 1951: metacercaria encysted in muscles and liver [16, 72, 78, 79].

Telogaster opisthorchis Macfarlane, 1945: metacercaria encysted in muscles [77, 79].

Mollusca

Glochidia of freshwater bivalves (Hyridella sp. and Diplodon (= Hyridella) sp.): gills and external surfaces [16, 84].

Galaxias divergens Stokell, 1959. Dwarf galaxias.

Platyhelminthes - Digenea

Deretrema philippae Hine, 1977: gall bladder [43].

Deretrema sp.: gall bladder [72].

Stegodexamene anguillae Macfarlane, 1951: metacercaria, ?encysted in body tissues [72].

Telogaster opisthorchis Macfarlane, 1945: metacercaria, ?encysted in muscles [72].

Galaxias fasciatus Gray, 1842. Banded kokopu.

Platyhelminthes - Digenea

Telogaster opisthorchis Macfarlane, 1945: metacercaria, ?encysted in muscles [72].

Galaxias maculatus (Jenyns, 1842). Inanga. (See also [10] for Australian records.

Protozoa - Myxozoa

Myxobolus iucundus Hine, 1977: cysts in muscles [42, 72].

Platyhelminthes - Digenea

Coitocaecum anaspidis Hickman, 1934: intestine [76].

Deretrema minutum Manter, 1954: intestine [71, 80].

Stegodexamene anguillae Macfarlane, 1951: metacercaria, ?encysted in muscles [72].

Telogaster opisthorchis Macfarlane, 1945: metacercaria encysted in muscles [72, 77].

Platyhelminthes - Cestoda

Nippotaeniid: intestine [36].

Nippotaenia contorta Hine, 1977: intestine [41].

Nippotaenia sp.: lower intestine [71].

Nematoda

Aphelenchus sp.: stomach [71]. (Possibly ingested with food and not parasitic [71, 72].)

Dorylaimus sp.: stomach [71]. (Possibly ingested with food and not parasitic [71, 72].)

Eustrongylides sp.: larva encapsulated in body cavity, in or on organs [45, 71, 92].

Hedruris spinigera Baylis, 1931: stomach [9, 18, 19, 71, 92].

Unidentified ascarid: ? intestine [71].

Unidentified spiruroid: stomach [71].

Acanthocephala

Acanthocephalus galaxii Hine, 1977: intestine [40].

Acanthocephalus sp.: intestine [81].

Unidentified acanthocephalan: intestine [71].

Crustacea - Copepoda

Abergasilus amplexus Hewitt, 1978: gills [30].

Galaxias postvectis Clarke, 1899. Short-jawed Kokopu.

Platyhelminthes - Digenea

Telogaster opisthorchis Macfarlane, 1945: metacercaria, ?encysted in muscles [72].

Galaxias vulgaris Stokell, 1949. Common River Galaxias.

Platyhelminthes - Digenea

Telogaster opisthorchis Macfarlane, 1945: metacercaria, ?encysted in muscles [72].

Galaxiids - unspecified.

Protozoa - Ciliophora

Ichthyophthirius multifiliis Fouquet, 1876: ? body surface [60].

Platyhelminthes - Digenea

Coitocaecum anaspidis Hickman, 1934: ? intestine [81].

Deretrema minutum Manter, 1954: ? intestine [81].

Stegodexamene anguillae Macfarlane, 1951: metacercaria, ?encysted in tissues [79].

Telogaster opisthorchis Macfarlane, 1945: metacercaria, ?encysted in tissues [79].

Geotria australis Gray, 1851. Lamprey.

No New Zealand parasite records. See [10] for Australian records.

G. breviceps and G. cotidianus [72]. It is likely that the host was misidentified in [97].

Platyhelminthes - Digenea

Unidentified adult flukes: intestine [97].

Nematoda

Hedruris spinigera Baylis, 1931: gut [97].

Gobiomorphus breviceps (Stokell, 1940). Upland Bully.

Note: This species may have been confused with others in the literature, and particularly with G. cotidianus [72].

Monogenea

Gyrodactylid on fins [72].

Digenea

Coitocaecum anaspidis Hickman, 1934: ? intestine [72].

Stegodexamene anguillae Macfarlane, 1951: metacercaria encysted in body cavity [16, 72].

Telogaster opisthorchis Macfarlane, 1945: metacercaria encysted in body cavity [16].

Nematoda

Eustrongylides sp.: larva, ? encapsulated in body cavity [45].

Gobiomorphus cotidianus McDowall, 1975. Common Bully.

Note: As this common species was only described in 1975, earlier workers may have identified it as G. basalis, G. gobioides or other Gobiomorphus spp. [72].

Protozoa - Ciliophora

Ichthyophthirius multifiliis Fouquet, 1876: body surface [16].

Platyhelminthes - Digenea

Coitocaecum zealandicum Hine, 1977: intestine and rectum [43].

Stegodexamene anguillae Macfarlane, 1951: metacercaria encysted in liver [45, 72].

Gobiomorphus basalis (Gray, 1842). Cran's Bully.

Note: This species may have been confused in the literature with
Cestoda

Amurotaenia decudua Hine, 1977: intestine [41].

Unidentified nippotaeniid: intestine [36].

Acanthocephala

Acanthocephalus galaxii Hine, 1977: intestine [40].

Gobiomorphus gobioides (Valenciennes, 1837). Giant Bully.

Note: Many early records of this species should probably be referred
to G. cotidianus [72].

Platyhelminthes - Digenea

Coitocaecum anaspidis Hickman, 1934: intestine [76].

Phyllodistomum anguillae Macfarlane, 1936: urinary bladder [75].

Stegodexamene anguillae Macfarlane, 1951: metacercaria encysted in
muscle [72, 78, 79].

Telogaster opisthorchis Macfarlane, 1945: metacercaria encysted in
muscle [79].

Nematoda

Contracaecum sp.: larva, in stomach or body cavity [92].

Eustrongylides sp.: larva, free in stomach or encapsulated in or on
organs [18, 45, 92].

Mollusca

Glochidia of freshwater bivalves (Diplodon (= Hyrideilla) sp.):
external surfaces [84].

Gobiomorphus hubbsi (Stokell, 1959). Blue-gilled Bully.

Platyhelminthes - Digenea

Coitocaecum zealandicum Hine, 1977: intestine and rectum [43].

Deretrema sp.: gall bladder [72].

Telogaster opisthorchis Macfarlane, 1945: metacercaria encysted in
muscles [45, 72].

Gobiomorphus huttoni (Ogilby, 1894). Red-finned Bully.

Platyhelminthes - Digenea

Coitocaecum anaspidis Hickman, 1934: ? intestine [72].

Coitocaecum zealandicum Hine, 1977: intestine and rectum [43].

Telogaster opisthorchis Macfarlane, 1945: metacercaria, ? encysted in muscles [72].

Acanthocephala

Unidentified acanthocephalan [72].

Gobiomorphus sp. - unspecified.

Protozoa - Ciliophora

Ichthyophthirius multifiliis Fouquet, 1876: ? body surface [37].

Platyhelminthes - Digenea

Stegodexamene anguillae Macfarlane, 1951: metacercaria, ? encysted in muscle [79].

Telogaster opisthorchis Macfarlane, 1945: metacercaria encysted in muscle [77, 79].

Nematoda

Eustrongylides sp.: encysted in viscera [95].

Acanthocephala

Acanthocephalus sp.: intestine [76].

Mollusca

Glochidia of freshwater bivalves (Hyridella sp.): gills [16].

Leptoscopus macropygus (Richardson, 1848). Stargazer.

Protozoa - Apicomplexa

Haemogregarina leptoscopi Laird, 1952: blood [64].

Nematoda

Anisakis sp.: larva encapsulated on viscera, mesenteries and under peritoneum [18].

Contracaecum (Thynnascaris) sp.: larva in stomach, intestine and body cavity [18].

Cucullanus sp. a: intestine [18].

Hedruris spinigera Baylis, 1931: stomach [18].

Annelida - Hirudinea

Makarabdella manteri Richardson, 1959: branchial chamber (perhaps an incidental infection after capture of host) [86].

Mugil cephalus Linnaeus, 1758. Grey Mullet. See also [10] and [22] for Australian records.

Nematoda

Cucullanellus sp. b: intestine [18].

Cucullanus sp. g: intestine [18].

Neochanna apoda Günther, 1867. Brown Mudfish.

Platyhelminthes - Digenea

Telogaster opisthorchis Macfarlane, 1945: metacercaria encysted in or on gonads and liver [16, 24, 72].

Unidentified echinostome: metacercaria encysted in body [24].

Nematoda

Hedruris spinigera Baylis, 1931: stomach [24].

Unidentified rhabditoids: stomach [24].

Acanthocephala

Unidentified acanthocephalan: ? intestine [24].

Neochanna diversus Stokell, 1949. Black Mudfish.

Acanthocephala

Un-named acanthocephalan [72].

Oncorhynchus nerka (Walbaum, 1792). Sockeye Salmon.

Nematoda

Eustrongylides sp.: larva, ? encapsulated in body cavity [45].

Oncorhynchus tshawytscha (Walbaum, 1792). Quinnet Salmon.

Protozoa - Ciliophora

Ichthyophthirius multifiliis Fouquet, 1876: skin and gills [16].

Platyhelminthes - Cestoda

Unidentified trypanorhynch: larva in ovary [16].

Unidentified cestode: larva ? in body cavity [48].

Nematoda

Hedruris spinigera Baylis, 1931: stomach [92].

Crustacea - Copepoda

Paeonodes nemaformis Hewitt, 1969: gills, operculum, bases of pectoral fins [27].

Oncorhynchus sp.

Platyhelminthes - Cestoda

? Pelichnibothrium sp.: larva in gut [21].

Perca fluviatilis Linnaeus, 1758. Perch. See also [10] for Australian records.

Nematoda

Hedruris spinigera Baylis, 1931: stomach [25].

Crustacea - Copepoda

Abergasilus amplexus Hewitt, 1978: gills [30].

Retropinna retropinna (Richardson, 1848). Common Smelt.

Platyhelminthes - Digenea

Coitocaecum anaspidis Hickman, 1934: intestine [72].

Telogaster opisthorchis Macfarlane, 1945: metacercaria, ? encysted in muscles [72].

Unidentified metacercaria under skin [61].

Platyhelminthes - Cestoda

? Hymenolepid cysticeroid: gut wall [61].

Nippotaenia contorta Hine, 1977: intestine [41].

Nippotaenia fragilis Hine, 1977: intestine [41].

Unidentified nippotaeniid: intestine [36].

? Pelichnibothrium sp.: larva in pyloric caeca and rectum [21].

Nematoda

Contracaecum (Thynnascaris) sp.: larva, gut and body cavity [18].

Hedruris spinigera Baylis, 1931: stomach [9, 18, 19, 45, 92, 95].

Acanthocephala

Acanthocephalus galaxii Hine, 1977: intestine [40].

Corynosoma sp.: immature form in body cavity [21].

Unidentified acanthocephalan: ? intestine [72].

Crustacea - Copepoda

Abergasilus amplexus Hewitt, 1978: gills [30, 63].

Mollusca

Glochidia of freshwater bivalves (Hyridella sp.): gills and fins [16, 61].

Rhombosolea leporina Günther, 1862. Yellowbelly Flounder.

Protozoa - Myxozoa

Unidentified forms: gills and fins [97].

Platyhelminthes - Digenea

Unidentified adults: intestine [97].

Nematoda

Anisakis sp.: larva encapsulated on viscera, mesenteries and under peritoneum [18].

Cucullanus antipodeus Baylis, 1932: intestine [18, 97].

Cucullanus sp. a: intestine [18].

Acanthocephala

Heteracanthocephalus peltorhampi Baylis, 1944: intestine [97].

Crustacea - Copepoda

Abergasilus amplexus Hewitt, 1978: gills [30].

Crustacea - Isopoda

Nerocila orbigny (Guérin-Meneville, 1829-1832): gills, fins, lower body surface [97].

Rhombosolea retiaria Hutton, 1874. Black Flounder.

Nematoda

Cucullanus antipodeus Baylis, 1932: intestine [18, 97].

Cucullanus sp. a: intestine [18].

Eustrongylides sp.: larva encapsulated in body cavity, on organs or in the flesh [45, 92].

Hedruris spinigera Baylis, 1931: stomach [18, 92].

Crustacea - Copepoda

Abergasilus amplexus Hewitt, 1978: gills [30].

Salmo gairdneri Richardson, 1836. Rainbow Trout. See also [10] for Australian records.

Protozoa - Myxozoa

Myxosoma cerebrialis (Hofer, 1903): cysts in cartilage of head and elsewhere [2, 3, 4, 6, 11, 12, 14, 15, 16, 17, 28, 34, 35, 48, 50, 53, 72].

Protozoa - Ciliophora

Ichthyphthirius multifiliis Fouquet, 1876: skin [16].

Nematoda

Contracaecum (Thynnascaris) sp.: larva, stomach [18].

Contracaecum sp.: throat [16, 92].

Eustrongylides sp.: larva, free in gut or encapsulated in or on organs [16, 18, 45, 92].

Mollusca

Glochidia of freshwater bivalves (Hyridella sp.): gills [16].

Salmo trutta Linnaeus, 1758. Brown Trout. See also [10] for Australian records.

Protozoa - Myxozoa

Myxosoma cerebralis (Hofer, 1903): ? cartilage of head [17].

Platyhelminthes - Digenea

Coitocaecum anaspidis Hickman, 1934: intestine [21, 76].

Derogenes varicus (Müller, 1784): stomach [21].

Lecithocladium magnacetabulum Yamaguti, 1934: stomach [21].

Lecithocladium seriolellae Manter, 1954: stomach [21].

Stegodexamene anguillae Macfarlane, 1951: metacercaria, ? encysted in body cavity [21, 79].

Telogaster opisthorchis Macfarlane, 1945: metacercaria encysted in muscle [21, 77, 79].

Cestoda

?Pelichnibothrium sp.: larva in pyloric caeca and rectum [21].

Nematoda

Contracaecum (Thynnascaris) sp.: larva, ? intestine [21].

Contracaecum (Thynnascaris) aduncum (Rudolphi, 1802): not mature, ? intestine [21].

Cucullanus antipodeus Baylis, 1931: stomach [21].

Eustrongylides sp.: larva, free in gut or encapsulated in or on organs [16, 18, 21, 45, 92].

Hedruris spingera Baylis, 1931: stomach [8, 21, 92].

Acanthocephala

Corynosoma sp.: acanthellae encysted around pyloric caeca, immature adults in duodenum [21].

Crustacea - Copepoda

Paeonodes nemaformis Hewitt, 1969: gills, operculum and bases of pectoral fins [27].

Crustacea - Isopoda

Nerocila orbignyi (Guérin-Meneville, 1829-1832): body surface [91].

Salmonids - unspecified.

Protozoa - Myxozoa

Myxosoma cerebralis (Hofer, 1903): ? cartilage of head [1, 5, 13, 29, 32, 73, 74, 96].

Protozoa - Ciliophora

Ichthyophthirius multifiliis Fouquet, 1876: body surface [13, 14, 32, 48, 55]

Nematoda

Eustrongylides sp.: body cavity and muscle [16, 48, 95].

Hedruris spinigera Baylis, 1931: stomach [95].

Crustacea - Copepoda

Paeonodes nemaformis Hewitt, 1969: ectoparasitic [31, 32].

Tinca tinca (Linnaeus, 1758). Tench.

Nematoda

Eustrongylides sp.: larva, ? encapsulated in body cavity [45].

Tripterygion nigripenne (Valenciennes, 1836)

Platyhelminthes - Digenea

Unidentified adult digeneans: intestine [97].

Unspecified freshwater fish

Protozoa - Ciliophora

Chilodonella sp: body surface [13].

Ichthyophthirius multifiliis Fouquet, 1876: body surface [11, 13, 55, 72].

Trichodina sp.: body surface [13].

Platyhelminthes - Monogenea

Unspecified monogeneans [13].

Platyhelminthes - Digenea

Coitocaecum sp.: ? intestine [57].

Deretrema minutum Manter, 1954: ? intestine [57].

Stegodexamene anguillae Macfarlane, 1951: ? metacercaria in tissues and adult in gut [57].

Telogaster opisthorchis Macfarlane, 1945: ? metacercaria in tissues and adult in gut [57].

Crustacea - Copepoda

Abergasilus amplexus Hewitt, 1978: ectoparasitic [31, 45].

PARASITES

Protozoa - Apicomplexa

Eimeria sp.

blister-like cysts in intestine Anguilla sp. [37, 44, 55]

Eimeria anguillae Léger and Hollande, 1922

oocysts in blisters in gut wall Anguilla australis [16, 39]
 Anguilla dieffenbachii [16, 39]

Haemogregarina leptoscoli Laird, 1952

blood Leptoscopus macropygus [64]

Protozoa - Myxozoa

Chloromyxum sp.

urinary bladder Anguilla australis [45]
 Anguilla dieffenbachii [45]

Henneguya sp.

intestine Anguilla australis [45]
 Anguilla dieffenbachii [45]

Leptotheca annulata Meglitsch, 1960

gall bladder Arripis trutta [83]

Leptotheca minima Meglitsch, 1960

gall bladder Arripis trutta [83]

Myxidium acinum Hine, 1975

spores in cysts on gills Anguilla australis [38, 45, 54]
 Anguilla dieffenbachii [38, 45, 47,
 54]

Myxidium giardi Cépède, 1905. See under M. serum and M. zealandicum.

Myxidium serum Hine, 1975 (= M. giardi Cépède, 1905 according to [54])

mature spores in cysts in alimentary Anguilla dieffenbachii [38, 45, 54]
 musculature and occasionally

submucosa, immature spores in cysts
in mesenteric connective tissue.

Myxidium zealandicum Hine, 1975 (= M. giardi Cépède, 1905 according to [54])

spores in cysts in gill filaments,
gill arches, skin, walls of swim
and urinary bladders, and on
serosal surface of stomach. Free
spores in liver, gall and urinary
bladders.

Anguilla australis [38, 45, 46, 47, 54]
Anguilla dieffenbachii [38, 45, 46, 47,
54, 70]

Myxidium sp.

spores in cysts on gills. Free
spores in reticulo-histiocytic
cells. Trophozoite in gall
bladder.

Anguilla australis [16, 39, 55, 67, 72]
Anguilla dieffenbachii [16, 39, 55, 67]
Anguilla sp. [32, 37, 72]

Myxobolus iucundus Hine, 1977

cysts in muscles

Galaxias maculatus [42, 72]

Myxobolus sp.

cysts in skin, muscle. Free
spores in liver, urinary bladder
and reticulo-histiocytic cells.

Anguilla australis [16, 45, 67, 70]
Anguilla dieffenbachii [16, 45, 67, 70]
Anguilla sp. [32, 37, 55]
Cheimarrichthys forsteri [55]
Galaxias brevipinnis [16]

Myxosoma cerebralis (Hofer, 1903)

cysts in cartilage of head and
elsewhere

Salmo gairdneri [2, 3, 4, 6, 11, 12, 14,
15, 16, 17, 28, 34, 35, 48, 50, 53, 72]
Salmo trutta [17]
unspecified salmonid [1, 5, 13, 29, 32,
73, 74, 96]

Thelohanellus sp.

cysts in skin

Anguilla australis [45]
Anguilla dieffenbachii [45]
Anguilla sp. [16, 72]

Unidentified forms

gills and fins

Rhombosolea leporina [97]

Protozoa - Ciliophora

Chilodonella sp.

gills, body surface

Anguilla sp. [16]

unspecified freshwater fish [13]

Ichthyophthirius multifiliis Fouquet, 1876

body surface, gills and pharynx

Anguilla sp. [13, 16, 32, 44, 45, 55, 59, 60]Ctenopharyngodon idella [16, 23, 37]Galaxias brevipinnis [16]

galaxiids (unspecified) [60]

Gobiomorphus cotidianus [16]Gobiomorphus sp. [37]Oncorhynchus tshawytscha [16]Salmo gairdneri [16]

salmonids (unspecified) [13, 14, 32, 48, 55]

unspecified freshwater fish [11, 13, 55, 72]

Scyphidia sp.

gills

Anguilla australis [16]Trichodina anguillae Wu, 1961

ectoparasitic

Anguilla sp. [66]Trichodina sp.

in smears of body mucus, blood films, liver and splenic imprints.

Anguilla australis [45, 66]Anguilla dieffenbachii [16, 45, 66]

unspecified freshwater fish [13]

Trichodinid

ectoparasitic

Anguilla sp. [16]Tripartiella sp.

scales and fins

Ctenopharyngodon idella [16, 23, 37]

Platyhelminthes - Monogenea

Dactylogyrus ctenopharyngodonis Achmerow, 1952

gills

Ctenopharyngodon idella [23]

Dactylogyrus sp.

? gills

Ctenopharyngodon idella [16, 37]Diplasiocotyle johnstoni Sandars, 1944

gills

Aldrichetta forsteri [26, 89, 90]Gonoplasius truttae Dillon and Hargis, 1965 (= Kahawaia truttae (Dillon and Hargis, 1965) Lebedev, 1969 according to [90])

gills

Arripis trutta [20]Gyrodactylus ctenopharyngodontis Lin Mo-en, 1962

scales and fins

Ctenopharyngodon idella [23]Gyrodactylus sp.

gills

Ctenopharyngodon idella [16, 37]Galaxias brevipinnis [16]Kahawaia truttae (Dillon and Hargis, 1965) (See also Gonoplasius truttae above)

gills

Arripis trutta [89, 90]

Unidentified gyrodactylid

fins

Galaxias brevipinnis [72]Gobiomorphus breviceps [72]

Unidentified microcotylid

gills

Aldrichetta forsteri [89]

Unspecified monogeneans

?

unspecified freshwater fish [13]

Platyhelminthes - Digenea

Anahemiurus sp.

? intestine

Arripis trutta [7]Coitocaecum anaspidis Hickman, 1934

intestine

Anguilla australis [45, 51, 56, 81]Anguilla dieffenbachii [45, 51, 80, 81]Anguilla sp. [76, 79]Galaxias brevipinnis [76]Galaxias maculatus [76]Galaxias sp. [81]

Gobiomorphus breviceps [72]
Gobiomorphus gobioides [76]
Gobiomorphus huttoni [72]
Retropinna retropinna [72]
Salmo trutta [21, 76]

Coitocaecum zealandicum Hine, 1977

intestine and rectum

Anguilla australis [45]
Anguilla dieffenbachii [45]
Cheimarrichthys forsteri [43]
Gobiomorphus cotidianus [43]
Gobiomorphus hubbsi [43]
Gobiomorphus huttoni [43]

Coitocaecum sp.

? intestine

unspecified freshwater fish [57]

Deretrema minutum Manter, 1954

intestine

Anguilla australis [45]
Anguilla dieffenbachii [45]
Galaxias maculatus [71, 80]
Galaxias sp. [81]
unspecified freshwater fish [57]

Deretrema philippae Hine, 1977

gall bladder

Galaxias divergens [43]

Deretrema sp.

gall bladder and intestine

Galaxias brevipinnis [72]
Galaxias divergens [72]
Gobiomorphus hubbsi [72]

Derogenes varicus (Müller, 1784)

stomach

Salmo trutta [21]

Grassitrema prudhoei Yeh, 1955 (= Tricotyledonia genypteri Fyfe, 1954 according to [82])

stomach

Anguilla australis [98]
Anguilla dieffenbachii [98]

Lecithochirium sp.

? intestine

Anguilla australis [87]

Lecithocladium magnacetabulum Yamaguti, 1934

stomach Salmo trutta [21]

Lecithocladium seriolellae Manter, 1954

stomach Salmo trutta [21]

Paracardicoloides yamagutii Martin, 1974

circulatory system, especially Anguilla australis [45, 51]
in gills Anguilla dieffenbachii [45, 51]

Parahemiurus arripidis Lebedev, 1971

stomach Arripis trutta [65]

Phyllodistomum anguillae Macfarlane, 1936

urinary bladder Anguilla australis [75]
Anguilla dieffenbachii [75]
Galaxias brevipinnis [75]
Gobiomorphus gobioides [75]

Phyllodistomum sp.

urinary bladder Anguilla australis [16, 45, 51]
Anguilla dieffenbachii [16, 45, 51]

Prosorhynchus sp.

? intestine Arripis trutta [80]

Stegodexamene anguillae Macfarlane, 1951

adults in anterior intestine Anguilla australis [45, 49, 51, 56,
78, 79, 81, 87]
Anguilla dieffenbachii [45, 49, 51,
56, 78, 79, 80, 81, 87]
metacercariae encysted in body
cavity, in muscles, liver and
other organs Galaxias brevipinnis [16, 72, 78, 79]
Galaxias divergens [72]
Galaxias maculatus [72]
Galaxias sp. [79]
Gobiomorphus breviceps [16, 72]
Gobiomorphus cotidianus [45, 72]
Gobiomorphus gobioides [72, 78, 79]
Gobiomorphus sp. [79]
Salmo trutta [21, 79]
Unspecified freshwater fish [57]

Syncoelium filiferum (Sars, 1885)

gills Arripis trutta [89, 90]

Telogaster opisthorchis Macfarlane, 1945adults in posterior intestine,
rectumAnguilla australis [45, 49, 51, 56, 68,
69, 77, 78, 79, 81, 87]Anguilla dieffenbachii [45, 49, 51, 56,
68, 69, 77, 78, 79, 81, 87]metacercariae encysted in body
cavity, muscles and elsewhereGalaxias brevipinnis [77, 79]Galaxias divergens [72]Galaxias fasciatus [72]Galaxias maculatus [72, 77]Galaxias postvectis [72]Galaxias vulgaris [72]Galaxias sp. [79]Gobiomorphus breviceps [16]Gobiomorphus gobioides [79]Gobiomorphus hubbsi [45, 72]Gobiomorphus huttoni [72]Gobiomorphus sp. [77, 79]Neochanna apoda [16, 24, 72]Retropinna retropinna [72]Salmo trutta [21, 77, 79]

Unspecified freshwater fish [57]

Telorhynchus arripidis Crowcroft, 1947

intestine

Arripis trutta [80]Tergestia agnostomi Manter, 1954

intestine

Aldrichetta forsteri [62, 80]Tricotyledonia genypteri Fyfe, 1954 (See Grassitrema prudhoei above)Tubulovesicula angusticauda (Nicol, 1915)

stomach

Anguilla australis [98]Anguilla dieffenbachii [98]

Unidentified bivesiculid

gut

Anguilla australis [87]Anguilla dieffenbachii [87]

Unidentified echinostome metacercaria

encysted in body

Neochanna apoda [24]

Unidentified hemiurid

? intestine

Anguilla australis [45]Anguilla dieffenbachii [45]

Unidentified digeneans, adults and
metacercariae

Aldrichetta forsteri [97]
Arripis trutta [97]
Gobiomorphus basalis [97]
Retropinna retropinna [61]
Rhombosolea leporina [97]
Tripterygion nigripinne [97]

Platyhelminthes - Cestoda

Amurotaenia decida Hine, 1977

intestine

Gobiomorphus cotidianus [41]

Bothriocephalus gowkongensis Yeh, 1955

intestine

Ctenopharyngodon idella [16, 23]

Lacistorhynchus tenuis (van Beneden, 1858)

plerocercoid in body cavity

Aldrichetta forsteri [88]

Nippotaenia contorta Hine, 1977

anterior and mid-intestine

Galaxias maculatus [41]
Retropinna retropinna [41]

Nippotaenia fragilis Hine, 1977

anterior and mid-intestine

Retropinna retropinna [41]

Nippotaenia sp.

lower intestine

Galaxias maculatus [71]

Nybelinia sp.

larva in stomach

Arripis trutta [7]

? Pelichnibothrium sp.

pyloric caeca, gut and
rectum

Oncorhynchus sp. [21]
Retropinna retropinna [21]
Salmo trutta [21]

Unidentified ?hymenolepid cysticeroid

gut wall

Retropinna retropinna [61]

Unidentified nippotaenids

intestine

Galaxias maculatus [36]
Gobiomorphus cotidianus [36]
Retropinna retropinna [36]

Unidentified proteocephalid plerocercoid

? intestine or body cavity

Anguilla australis [45]
Anguilla dieffenbachii [45]

Unidentified larval cestodes

body cavity and ovary

Oncorhynchus tshawytscha [16, 48]

Nematoda

Anguillicola australiensis Johnston and Mawson, 1940

swim bladder

Anguilla australis [16, 45, 87]
Anguilla dieffenbachii [16, 18, 45, 87]

Anisakis sp.larva encapsulated on viscera,
mesenteries and under peritoneum

Aldrichetta forsteri [18]
Arripis trutta [18]
Leptoscopus macropygus [18]
Rhombosolea leporina [18]

Aphelenchus sp.stomach (possibly ingested with
food and not parasitic)Galaxias maculatus [71, 72]Ascarophis sp.

? intestine

Anguilla australis [45]
Anguilla sp. [16]

Ascarophis sp. d.

stomach

Anguilla dieffenbachii [18]Contracaecum (Thynnascaris) aduncum (Rudolphi, 1802)

immature form in intestine

Arripis trutta [7, 18, 97]
Salmo trutta [21]

Contracaecum sp.

body cavity, throat, stomach,
intestine

Aldrichetta forsteri [18]
Anguilla dieffenbachii [18]
Arripis trutta [18]
Gobiomorphus gobioides [92]
Leptoscopus macropygus [18]
Retropinna retropinna [18]
Salmo gairdneri [16, 18, 92]
Salmo trutta [21]

Cucullanellus sp. b

intestine

Mugil cephalus [18]

Cucullanus antipodeus Baylis, 1932

stomach and intestine

Rhombosolea leporina [18, 97]
Rhombosolea retiararia [18]
Salmo trutta [21]

Cucullanus sp. a

intestine

Anguilla dieffenbachii [18]
Leptoscopus macropygus [18]
Rhombosolea retiararia [18]

Cucullanus sp. b

intestine

Anguilla australis [18]
Anguilla dieffenbachii [18]

Cucullanus sp. g

intestine

Mugil cephalus [18]

Cucullanus sp.

intestine

Anguilla australis [45, 49, 51, 52,
56, 87]
Anguilla dieffenbachii [45, 49, 51,
52, 56, 87]

Dorylaimus sp.

stomach (possibly ingested with
food and not parasitic)

Galaxias maculatus [71, 72]

Eustrongylides sp.

larva in intestine or
encapsulated on organs

Anguilla australis [18, 45, 51]
Anguilla dieffenbachii [18, 45, 51]

Anguilla sp. [16, 94]
Galaxias maculatus [45, 71, 92]
Gobiomorphus breviceps [45]
Gobiomorphus gobioides [18, 45, 92]
Gobiomorphus sp. [95]
Oncorhynchus nerka [45]
Rhombosolea retiaria [45, 92]
Salmo gairdneri [16, 18, 45, 92]
Salmo trutta [16, 18, 21, 45, 92]
Tinca tinca [45]
 Unspecified salmonids [16, 48, 95]

Hedruris spinigera Baylis, 1931

stomach and anterior intestine

Aldrichetta forsteri [8, 9, 18, 62,
 92, 95, 97]
Anguilla australis [18, 19, 45, 51, 59]
Anguilla dieffenbachii [18, 45, 51, 59, 92]
Galaxias maculatus [9, 18, 19, 71, 92]
Gobiomorphus basalis [97]
Leptoscopus macropygus [18]
Neochanna apoda [24]
Oncorhynchus tshawytscha [92]
Perca fluviatilis [25]
Retropinna retropinna [9, 18, 19, 45, 92,
 95]
Rhombosolea retiaria [18, 92]
Salmo trutta [8, 21, 92]
Salmo sp. [95]

Paranisakis sp.

larva encysted in stomach wall

Anguilla dieffenbachii [18, 45]

Paraquimperia sp.

intestine

Anguilla australis [18, 45, 49, 51, 52,
 56]
Anguilla dieffenbachii [18, 45, 49, 51,
 52, 56, 87]

Philometra sp.

body cavity

Anguilla dieffenbachii [18, 45]

Procamallanus sp. (= Spirocamallanus sp. according to [52])

? intestine

Anguilla australis [45]
Anguilla dieffenbachii [45]

Spirocamallanus sp. (See also Procamallanus above)

intestine

Anguilla australis [49, 51, 52, 56, 87]
Anguilla dieffenbachii [16, 18, 44, 49,
 51, 52, 56, 87]

Unidentified ascarid nematode

? intestine

Galaxias maculatus [71]

Unidentified rhabditoid nematodes

stomach

Neochanna apoda [24]

Unidentified spiruroid nematode

stomach

Galaxias maculatus [71]

Acanthocephala

Acanthocephalus galaxii Hine, 1977

intestine

Anguilla australis [40, 45, 51]
Anguilla dieffenbachii [40, 45, 51]
Galaxias argenteus [40]
Galaxias maculatus [40]
Gobiomorphus cotidianus [40]
Retropinna retropinna [40]

Acanthocephalus sp.

intestine

Anguilla sp. [76]
Galaxias maculatus [81]
Gobiomorphus sp. [76]

Corynosoma sp.immature forms in body cavity
and intestine

Retropinna retropinna [21]
Salmo trutta [21]

Heteracanthocephalus peltorhampi Baylis, 1944

intestine

Rhombosolea leporina [97]Neoechinorhynchus aldrichettae Edmonds, 1971

posterior intestine

Aldrichetta forsteri [16]
Anguilla australis [45]

Neoechinorhynchus chilkaensis Podder, 1937

posterior intestine and rectum

Aldrichetta forsteri [97]
Arripis trutta [97]

Unidentified acanthocephalans

intestine

Galaxias maculatus [71]
Gobiomorphus huttoni [72]
Neochanna apoda [24]
Neochanna diversus [72]
Retropinna retropinna [72]

Annelida - Hirudinea

Makarabdella manteri Richardson, 1959branchial chamber (perhaps
incidental after capture of host)Leptoscopus macropygus [86]

Mollusca

Glochidia of freshwater bivalves (Hyridella sp. and Diplodon (= Hyridella) sp.)gills, fins and external
surfacesAnguilla australis [45]
Anguilla dieffenbachii [45]
Galaxias brevipinnis [16, 84]
Gobiomorphus gobioides [84]
Gobiomorphus sp. [16]
Retropinna retropinna [16, 61]

Crustacea - Branchiura

Argulus japonicus Thiele, 1900

body surface

Carassius auratus [16, 72, 85, 96]

Crustacea - Copepoda

Abergasilus amplexus Hewitt, 1978

gills

Anguilla australis [30, 45, 63]
Anguilla dieffenbachii [30, 45]
Anguilla sp. [32]
Arripis trutta [30]
Carassius auratus [30]
Galaxias maculatus [30]
Perca fluviatilis [30]
Retropinna retropinna [30, 63]
Rhombosolea leporina [30]
Rhombosolea retiaria [30]
Unspecified freshwater fish [31, 45]Lernaea cyprinaceae Linnaeus, 1761body surface, musculature,
gillsCarassius auratus [16]
Ctenopharyngodon idella [23]
Unspecified cyprinid fish [31]Lernaea sp.

body surface

Aldrichetta forsteri [16]

Paeonodes nemaformis Hewitt, 1969gills, operculum, bases of
pectoral finsOncorhynchus tshawytscha [27]
Salmo trutta [27]
Unspecified salmonids [31, 32]

Crustacea - Isopoda

Codonophilus imbricatus (Fabricius, 1787)

mouth and throat

Arripis trutta [7]Nerocila macleayii Leach

? body surface

Arripis trutta [93]Nerocila orbignyi (Guérin-Meneville, 1829-1832)

gills, fins, lower body surface

Rhombosolea leporina [97]
Salmo trutta [91]

Unidentified isopod

gills

Aldrichetta forsteri [89]

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